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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,963	09/24/2003	Kyung-Ju Choi	AAF 7133US (C2)	4874
27868	7590	12/01/2004	EXAMINER	
JOHN F. SALAZAR MIDDLETON & REUTLINGER 2500 BROWN & WILLIAMSON TOWER LOUISVILLE, KY 40202			POPOVICS, ROBERT J	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/669,963

Applicant(s)

CHOI, KYUNG-JU

Examiner

Robert J Popovics

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 8/30/04 & 10/6/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

Claims 1,3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Perry (Perry's Chemical Engineer's Handbook 6<sup>th</sup>) or Griswold (US 2,855,330) or Lunde (US 2,784,801) or AAPA (Applicant's Admitted Prior Art), in view of Stringer (US 3,853,501).

The use of oil as a viscous coating to create an impingement type oil filter is notoriously well known in the art. In this regard, the teachings of AAPA are noted:

**It has been long known in the filtering art that in order to provide a viscous impingement fibrous filter, a suitable adhesive medium should be used on the filter media.**

Perry, under the discussion of air filters, at page 20-107, teaches (Emphasis added by Examiner):

**Panel filters may use either viscous or dry filter media. Viscous filters are so called because the medium is coated with a tacky liquid of high viscosity (e.g., mineral oil and adhesives) to retain the dust.**

Beyond Perry, Griswold (US 2,855,330) discloses the use of mineral oil as an impingement oil coating (col. 1, lines 15-50), as does Lunde (US 2,784,801) (col. 3, lines 35-40). These references do not appear to expressly disclose the use of silica.

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**Stringer discloses the use of sand (a.k.a. silica) as a substrate for mineral oil in a fluid filter.**

The filter medium used in the practice of this invention is a granular substrate which has been dried of water and surface wetted with a normally liquid hydrocarbon of sufficient fluidity and sufficiently low viscosity to wet the surface and pores of the substrate. The granular substrates useful as the primary filter medium in the practice of my invention, for example, can be sand, bauxite, synthetic silica-alumina materials, such as cracking catalyst, ground glass, crushed quartz, precipitated silicates, and the like. Soft clays should be avoided since they would tend to disintegrate and cause a plugging of the filter medium. While sand is the preferred substrate because of its availability and stability, the practitioner in the art can select other suitable substrates.

(5) The particle size of the granular substrate used in the practice of this invention should be fairly uniform and of sufficient size to avoid low permeability caused by channeling or packing as may occur in the case of soft clays mentioned above. The particle size should be as small as possible to provide maximum surface area for the amount of material used while avoiding particles that are too small to allow a uniform flow of the water through the filter.

**In view of the Stringer disclosure, it would have been obvious to one skilled in the art to modify the filter disclosed by any of Perry or Griswold or Lunde or AAPA, by including a sand substrate for the mineral oil in order to increase the available surface area and/or modify the viscosity/properties of the mineral oil, in order to enhance/optimize filtration. Moreover, sand is a preferred substrate because of its availability and stability as also taught by Stringer.**

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Perry (Perry's Chemical Engineer's Handbook 6<sup>th</sup>) or Griswold (US 2,855,330) or Lunde (US 2,784,801) or AAPA in view of Stringer (US 3,853,501), as applied above, and further in view of Wrightson (US 4,460,394). Claims 8-9 differ from the references as applied above, by specifying a snap together filter frame. Wrightson discloses a filter frame that snaps together. In view of this disclosure, it would have been obvious to one of ordinary skill in the art to modify the apparatus of the references as applied above, in order facilitate easier assembly of the filter.

***Response to Arguments***

Applicant's arguments filed August 30, 2004 have been considered but are moot in view of the new ground(s) of rejection.

***Terminal Disclaimer***

The terminal disclaimer filed on August 30, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent No. 6,652,748 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Any inquiry concerning this communication should be directed to Robert J Popovics at telephone number (571) 272-1164.

A large, stylized handwritten signature in black ink, likely belonging to Robert James Popovics, the Primary Examiner. The signature is fluid and cursive, with a prominent loop at the end.

Robert James Popovics  
Primary Examiner  
Art Unit 1724

November 20, 2004